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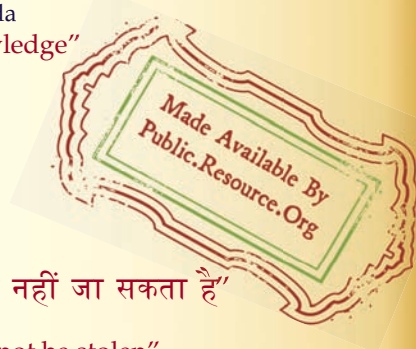
IS 3148 (1991): Slide fasteners (general purpose) [PGD 14: Consumer Products and Allied Equipments]



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“Knowledge is such a treasure which cannot be stolen”

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भारतीय मानक
सरकवां फास्टनर्स (सामान्य प्रयोजन के लिए)
(चौथा पुनरीक्षण)
Indian Standard
SLIDE FASTENERS (GENERAL PURPOSE)
(*Fourth Revision*)

UDC 687.078.81

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BUREAU OF INDIAN STANDARDS
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FOREWORD

This Indian Standard (Fourth Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Fasteners for Consumer Goods and Hair Cutting, Shaving, Shearing and Allied Equipments Sectional Committee had been approved by the Light Mechanical Engineering Division Council.

Slide fastener is a fastening device consisting of two flexible textile tapes with interlocking elements on the edge of each tape and a slider so arranged that by moving the slider along with those tapes (called as stringer tape) in one direction an opening is formed and by moving it in the opposite direction the opening is closed. The stringer tapes after joining (called as chain) can be fitted with or without end stops.

This standard was first issued in 1965 and subsequently revised in 1967, 1978 and 1983, covering only the metallic slide fasteners. For the sake of convenience of the user, the Sectional Committee responsible for the formulation of this standard decided to make the present version comprehensive by including in it the requirements for plastic slide fasteners, which were earlier covered separately in IS 4829 : 1983 'Plastic slide fasteners (*first revision*)' and method of tests covered in IS 10857 : 1984 'Methods of test for slide fasteners'.

This standard, however, does not cover the requirements for metallic slide fasteners for aviation purposes; the same are covered in IS 9748 : 1981.

In this revision, the main changes are in the material, finish and performance requirements. The performance requirements for metallic as well as plastic slide fasteners are rationalized and are same for both. The test for reciprocating movement has also been simplified. Besides this, the end uses of the various types of fasteners are included.

The chain of the fasteners are manufactured with different technology and machinery. Their construction differs depending upon the material used and technology adopted. Chain constructions are classified broadly as given in Annex A.

Examples of a wide range of end uses of slide fasteners are given in Annex A. These are grouped into five performance codes with their designations. The relative position of each end use in the Annex A is based on the currently accepted practices and judgement should be exercised on likely requirements when selecting a fastener for a particular end use by the purchaser and user of the slide fastener.

The purchaser shall select the preferred options permitted in the standard and include the following information while ordering slide fasteners:

- a) Designation No. and title of this Indian Standard;
- b) Chain construction;
- c) Size designation;
- d) Fastener type and style number;
- e) Length of the fastener or continuous chain roll;
- f) In respect of tape and chain:
 - 1) Material and construction;
 - 2) Colour (shade number required);
 - 3) Colour fastness required;
 - 4) Any protective coating required; and
 - 5) Special tape width and tape extension, if required;
- g) In respect to the slider pull tab — length and finish; and
- h) Any other special features or deviations.

Indian Standard

SLIDE FASTENERS (GENERAL PURPOSE)

(Fourth Revision)

1 SCOPE

1.1 This standard specifies nomenclature materials, size, designations, types, style numbers, performance requirements and tests for slide fasteners for general purpose.

1.2 Slide fasteners for aviation purposes are not covered in this standard.

2 REFERENCES

The following Indian Standards are necessary adjuncts to this standard:

IS No.	Title
196 : 1966	Atmospheric conditions for testing (<i>revised</i>)
688 : 1988	Method for determination of colour fastness of textile materials to organic solvents (<i>first revision</i>)
690 : 1988	Method for determination of colour fastness of textile materials to sea water (<i>first revision</i>)
765 : 1979	Method for determination of colour fastness of textile materials to washing: Test 4 (<i>second revision</i>)
971 : 1983	Method for determination of colour fastness of textile materials to perspiration (<i>first revision</i>)
2454 : 1985	Methods for determination of colour fastness of textile materials to artificial light (Xenon-lamp) (<i>first revision</i>)
3522 (Part 1) : 1989	Textiles — Estimation of common preservatives, Part 1 (<i>second revision</i>)

3 NOMENCLATURE

For the purpose of this standard, the nomenclature for various parts of the fasteners shall be as given in Fig. 1.

4 TERMINOLOGY

4.0 For the purpose of this standard, the following definitions shall apply.

4.1 Tape

An arrow textile fabric to which interlocking elements are fitted.

4.2 Elements

Rows of metal or plastic (moulded or filament) teeth (scoops), shaped in such a way that when fixed to the edge of tape, they engage or separate from each other under the action of the slider. Elements made of filament are also called formed coil.

4.3 Stringer Tape

A textile tape with an attached row of elements, mounted on one edge of the tape and designed to interlock a row similarly attached to another textile tape.

4.4 Chain (Zip Tape)

This is also referred to as 'Zip Tape'. Zip Tape is a continuous closure formed by interlocking two compatible stringers.

4.5 Slider

A movable part consisting essentially of a slider body and normally a puller which opens or closes the fastener by separating or engaging the stringer tapes. The slider may incorporate a locking mechanism, if required by the purchaser.

4.6 Puller (or Pull Tab)

The fitting attached to the slider to facilitate manipulation.

4.7 Locking Device

A device incorporated in the slider unit restricting its free movement along the fastener length in the direction of opening. The locking device may operate either automatically on release of the puller or by manual pressure on the puller.

4.8 Stoppers (Top and Bottom)

The stoppers are the end parts of the slide fasteners which restrict the movement of the slider on the chain. The stop(s) at the top-end of the chain that check(s) the extreme closing movement of the slider is called top stop. The stop at the bottom end of the chain that checks the extreme opening movement of the slider is called bottom stop (*see Fig. 1*).

4.9 Closed-End Fastener

A slide fastener which does not permit the complete separation of the two stringers. Normally the top-end of the fastener separates as the slider is lowered, although there is an additional type where the top-ends are permanently joined together by means of a bridge stop (*see Fig. 2*).

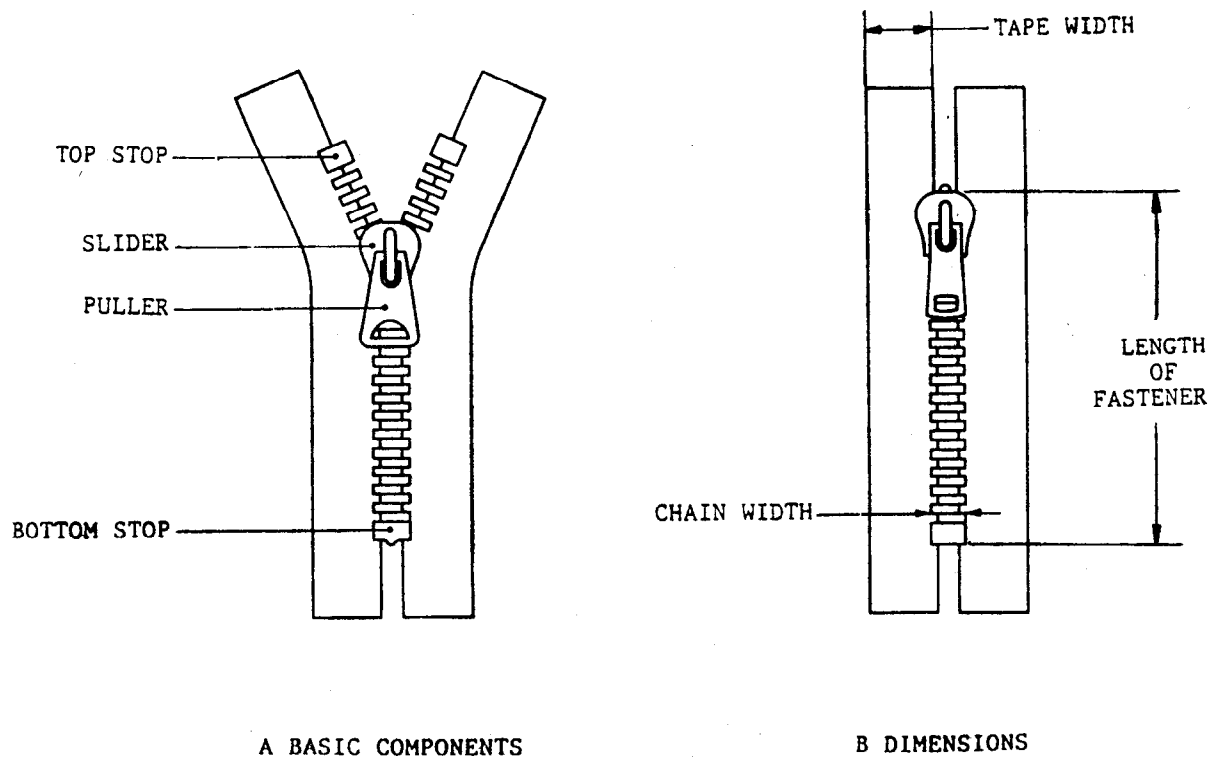


FIG. 1 SLIDE FASTENERS, BASIC COMPONENTS AND DIMENSIONS

(For convenience only metallic fasteners are illustrated.)

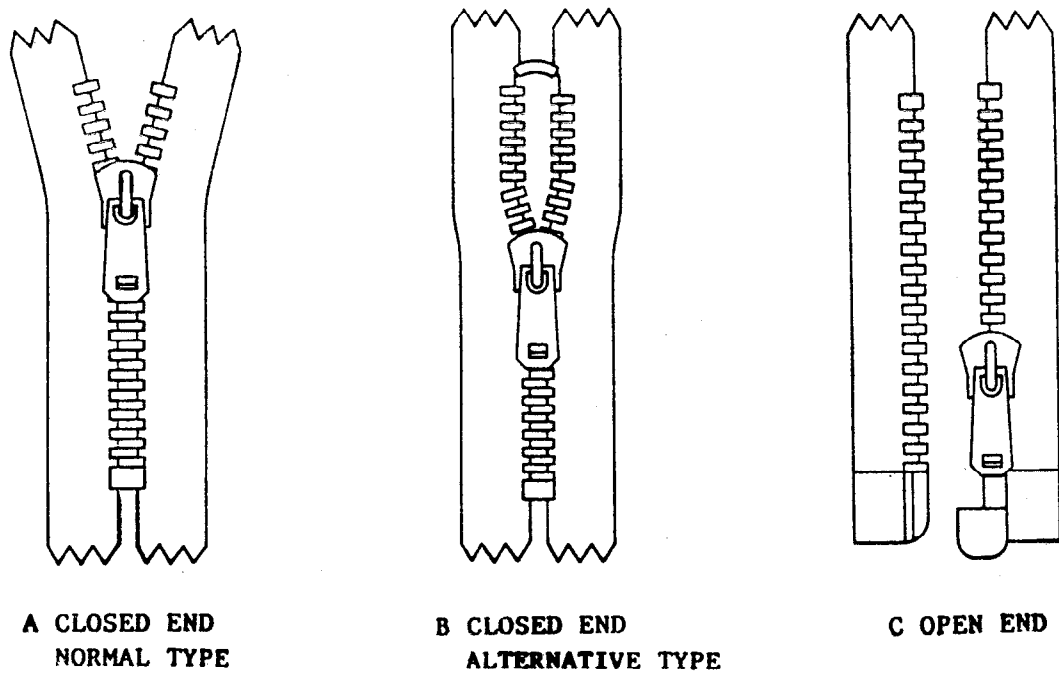


FIG. 2 ONE-WAY FASTENERS

4.10 Concealed Fastener

A slide fastener with the tapes folded so that on closure neither the slider body nor the fastener are visible from the outside of the article.

4.11 Open-End Fastener

A slide fastener having a special fitment at the bottom end of each stringers to be completely separated and re-assembled at will when the slider is in the fully open position. The special fitment normally consists of a pin permanently fixed to the bottom end of one stringer which fits into a box permanently fixed to the bottom end of the other stringer.

4.12 Two-Way Fastener

A slide fastener fitted with two sliders which operate with equal facility in either direction. This type is available in a variety of forms are illustrated in Fig. 3.

4.13 Reversible Fastener

A slide fastener capable of being operated from either side. It shall either have pullers on each side of the slider or a single puller that can be moved to both sides of the slider.

5 SIZE DESIGNATIONS

The slide fasteners shall be of the following 5 size designations according to the chain width (see 7.3):

Ultra Light
Light
Medium
Medium Heavy
Heavy

6 MATERIALS

6.1 Tape

It shall be a woven or knitted narrow fabric. Yarn used for the tape making may be cotton, polyester, nylon or any other yarn made from natural blended fibres or man-made fibres. The tape may be made with one or more than one types of yarn.

6.2 Chain

The elements of the chain may be of metal or non-metal. If of metal, the elements may be made from alloys of aluminium, copper, nickel, zinc or from corrosion resistance steel. If of non-metal, the elements may be made from nylon, polyester, polyacetal or any other synthetic material.

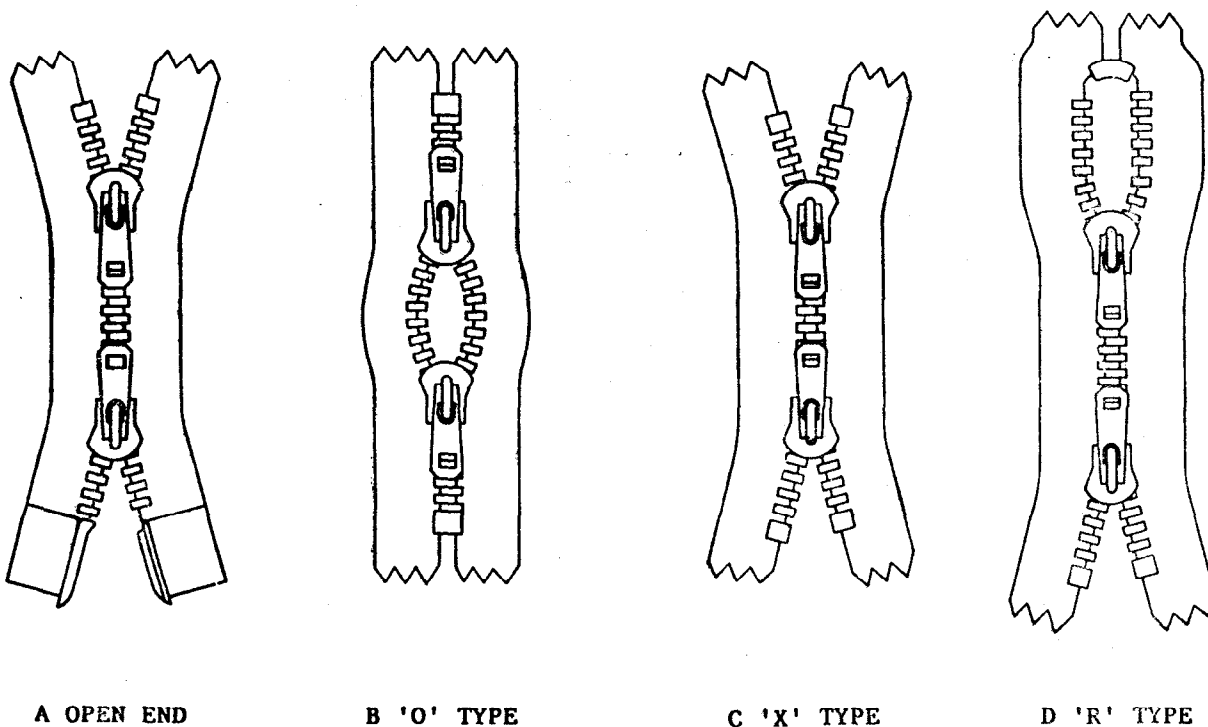


FIG. 3 TWO-WAY FASTENERS

6.3 Slider

Sliders shall be fabricated from metal such as an alloy of copper, nickel, zinc or aluminium and steel. When corrosive steel is used, sliders shall be electroplated for rust proofness. If specified by the purchaser, sliders may be enamel painted to matching shade. Such finish is required on the visible surfaces of the slider only.

6.4 Stopper

The stopper shall be fabricated from metals as described for chain or shall be of plastic. If specified by the purchaser, they may be plated or enamelled to matching shade/colour of the tape.

7 DIMENSIONS

7.1 Tape Width and Extension

Unless otherwise agreed to between the purchaser and the supplier, the minimum tape width and the minimum tape extension shall be as follows.

For measuring tape width and tape extension (see Fig. 1) :

Size Designation	Tape Width mm	Tape Extension, mm
Ultra Light	13	10
Light	13	12
Medium	16	14
Medium Heavy	18	16
Heavy	20	18

7.2 Pull Tab Length

For specific end use of zip fasteners, the pull tab length of the slider may be specified by the purchaser while ordering slide fasteners or sliders.

Typical puller lengths in common use are as follows:

	Length, mm
Short	10 to 15
Regular	15 to 22
Medium	22 to 30
Long	30

7.3 Chain Width

The chain widths for different sizes of fasteners shall be as follows:

Size Designation	Chain Width, mm
Ultra Light	Over 2.5 but not more than 3.5
Light	Over 3.5 but not more than 4.5
Medium	Over 4.5 but not more than 6.5
Medium Heavy	Over 5.5 but not more than 9.0
Heavy	Above 7.5

NOTE — A positive tolerance of 5 percent is permitted on the upper limits.

8 FINISH

8.1 For the fasteners which are exposed to corrosive influences such as sea-water, strong acids and alkalis or to fire hazards, etc, protective finish may be applied on tapes or chains if required by the purchaser. Owing to the many different applications of the various types of fasteners and the widely differing colour fastness characteristics required, any special colour fastness of tape or components shall be negotiated between the purchaser and the manufacturer.

8.2 If cotton is used in tape, it may be given when specified a rot proofing treatment by the purchaser with zinc naphthenate such that the tape shall contain not less than 0.8 percent and not more than 1.2 percent of zinc when tested by the method described in 12 of IS 3522 (Part 1) : 1966.

8.3 The dyeing of tapes shall be such that they will not deteriorate as a result of acid tendering during storage or use. The loss of breaking force of slide fastener or chain shall not exceed 10 percent after a storage time of 1 year.

9 FASTENER TYPES AND STYLE NUMBER

The slide fasteners of different size designations shall be further designated according to their types and style numbers. Each type of fastener shall be designated with an alphabet Y, P, H, K, O, X or R (see Tables 1 and 2) according to its construction. Some typical types are given in Fig. 2 and 3 for illustration. Under each type there shall be different style numbers as given in Tables 1 and 2. All styles are not available in all the designations/sizes of fasteners. While ordering the slide fasteners, the purchaser shall specify types and style numbers as given in these tables.

10 PERFORMANCE REQUIREMENTS

10.0 The test specimen shall be brought to standard atmospheric conditions in accordance with the requirements of IS 196 : 1966. The fastener shall comply with the requirements stated below:

- Length measurement,
- Colour fastness,
- Resistance of chain to lateral load (all types),
- Reciprocating movement of the slider under load on chain,
- Security of attachment of top stop (all types),
- Security of attachment of bottom stop for closed end fasteners,
- Resistance of open end attachments to lateral load for open end fasteners,
- Security of attachment of retainer fitted to open end fastener,
- Security of attachment of the puller to the slider (all types), and
- Slider lock holding strength.

10.1 Length Measurement

The distance from the top of the slider to the bottom of the bottom stop or retainer (in case of open end fasteners) shall be measured with the slider in the top position and with puller in the downward position (see Fig. 1 B).

10.1.1 The length shall be subject to a tolerance of ± 5 mm for ultralight and light, and ± 8 mm for medium and medium heavy size designations for the first 200 mm length, and 2 percent for subsequent length. For chains supplied in continuous roll form, the length variation may be ± 2 percent.

10.2 Colour Fastness

In procuring slide fasteners or chains for a specific use, consideration shall be given to specify only those colour fastness requirements as required of the end item to which the slide fasteners shall be fixed.

Typical Examples are:

End Item	Colour Fastness Requirement
Wool clothing which is dry cleaned	Good fastness to wet dry clean and light
Wool clothing which is laundered	Good fastness to laundering, chlorine bleaching and light
Tentage and equipage	Good fastness to weathering

10.3 Unless otherwise specified by the purchaser, the slide fastener shall have colour fastness ratings as given below:

Property	Method of Test	Rating
Colour fastness to :		
Light	IS 2454 : 1985	3 or better
Perspiration	IS 971 : 1983	
Sea water	IS 690 : 1988	
Washing	IS 765 : 1979	
Organic solvents (dry cleaning)	IS 688 : 1988	

10.4 Resistance of Chain to Lateral Load

The functioning of the fastener shall be unimpaired after being subjected to the load specified below in the manner described in Annex B:

Size Designation	Load, N (kgf, approx)
Ultra Light	150
Light	200
Medium	250
Medium Heavy	370
Heavy	470

10.5 Reciprocating Movement of Slider

The functioning of the fastener shall be unimpaired after completing 1 000 cycles as described in Annex C. The lateral and longitudinal loads are specified below:

Size Designation	Load, N (kgf, approx)	
	Lateral	Longitudinal
Ultra Light	7 (0.7)	5 (0.5)
Light	20 (1.0)	9 (0.9)
Medium	16 (1.6)	14 (1.4)
Medium Heavy	24 (2.4)	18 (1.8)
Heavy	30 (3.0)	23 (2.3)

10.5.1 If the fastener is less than 200 mm long, the test shall be carried out on either a suitably lengthened fastener or on a similar type but of length greater than 200 mm.

10.6 Security of Attachment of Top and Bottom Stops

The functioning of the fastener shall be unimpaired after being subjected to the loads given below in the manner described in Annex D:

Size Designation	Load, N (kgf, approx)	
	Top Stop	Bottom Stop
Ultra Light	50 (5)	35 (3.5)
Light	70 (7)	60 (6)
Medium	90 (9)	80 (8)
Medium Heavy	110 (11)	100 (10)
Heavy	130 (13)	140 (14)

10.7 Resistance of Retainer to Lateral Load for Open End Fasteners

The fastener shall be subjected to the load specified below, in the manner described in Annex E after which it shall be unimpaired and two halves shall be capable of being readily and successively separated or reassembled in accordance with the manufacturer's instruction:

Size Designation	Load, N (kgf, approx)
Ultra Light	40 (4)
Light	70 (7)
Medium	90 (9)
Medium Heavy	120 (12)
Heavy	160 (16)

10.8 Security of Attachment of Retainer to Longitudinal Load for Open End Fastener

The fastener shall be subjected to the load specified below in the manner described in Annex F after which it shall be unimpaired and the two halves shall be capable of being readily and successively separated and reassembled in accordance with manufacturer's instructions:

<i>Size Designation</i>	<i>Load, N (kgf, approx)</i>	
Ultra Light	40	(4)
Light	70	(7)
Medium	90	(9)
Medium Heavy	120	(12)
Heavy	150	(15)

10.9 Security of Attachment of Puller

The functioning of the slider shall be unimpaired after being subjected to the load given below in the manner described in Annex G:

<i>Size Designation</i>	<i>Load, N (kgf, approx)</i>	
Ultra Light	60	(6)
Light	70	(7)
Medium	140	(14)
Medium Heavy	200	(20)
Heavy	250	(25)

10.10 Slider Lock Holding Strength

The chain and locking device shall be unimpaired after the application of the load specified below in the manner described in Annex H:

<i>Size Designation</i>	<i>Load, N (kgf, approx)</i>	
Ultra Light	15	(1.5)
Light	20	(2)
Medium	40	(4)
Medium Heavy	50	(5)
Heavy	60	(6)

11 MARKING

The following information shall be indicated on the package:

- Indication of source of manufacture, initials or trade-mark, if any;
- Details of chain construction, size, designation, type and style number;
- Colour and shade;
- Length of each fastener or roll;
- Number of pieces in the pack; and
- Month and year of manufacture.

12 SAMPLING

Sampling and acceptance criteria for slide fasteners shall be as agreed to between the purchaser and the supplier.

Table 1 Types and Style Numbers of One-way Fasteners
(Clause 9)

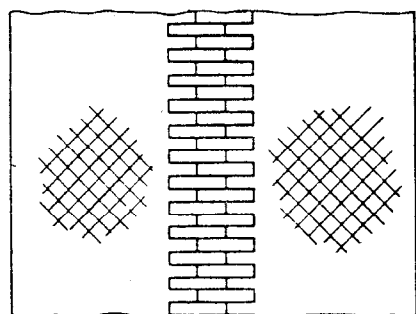
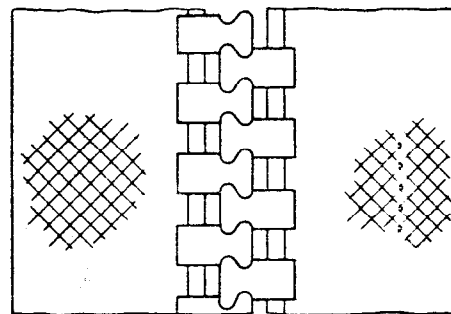
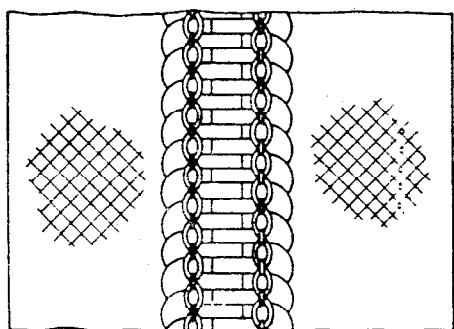
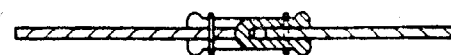
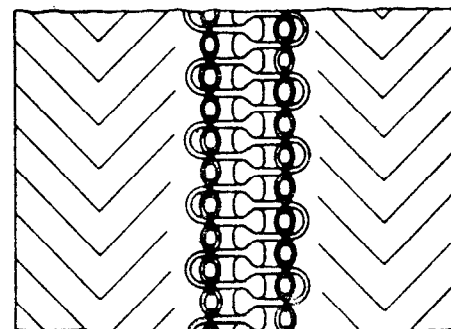
Type (Ref Fig. 2) (1)	Style No. (2)	Lock (3)	Top Stop (4)	Bottom Stop (5)
a) <i>Non-Reversible</i>				
Y	Y1	Without flange/wing pin/cam autolock	Open	Closed
	Y2			
	Y3			
	Y4			
P	P1	Without flange/wing pin/cam autolock	Bridge	Closed
	P2			
	P3			
	P4			
H	H1	Without flange/wing pin/cam autolock	Open	Separating Unit
	H2			
	H3			
	H4			
b) <i>Reversible</i>				
YR	YR1	Without flange/wing	Open	Closed
	YR2			
PR	PR1	Without flange/wing	Bridge	Closed
	PR2			
HR	HR1	Without flange/wing	Open	Separating Unit
	HR2			
NOTE — The second letter 'R' in type designations denotes that the fastener is reversible.				

Table 2 Types and Style Numbers of Two-way Fasteners
(Clause 9)

Type (Ref Fig. 3)	Style No.	Lock	Top Stop	Bottom Stop	Slider Arrangement
(1)	(2)	(3)	(4)	(5)	(6)
a) <i>Non-Reversible</i>					
K Fig. 3 (A)	K1 K2 K3 K4	Without flange/wing pin/cam autolock	Open	Separating unit (special slider)	Two sliders mouth to mouth
O Fig. 3 (B)	O1 O2 O3 O4	Without flange/wing pin/cam autolock			
X Fig. 3 (C)	X1 X2 X3 X4	Without flange/wing pin/cam autolock			
R Fig. 3 (D)	R1 R2 R3 R4	Without flange/wing pin/cam autolock			
b) <i>Reversible</i>					
KR	KR1 KR2	Without flange/wing	Open	Separating unit (special slider)	Two sliders
OR	OR1 OR2	Without flange/wing	Closed	Closed	Two sliders throat to throat
XR	XR1 XR2	Without flange/wing	Open	Open	Two sliders mouth to mouth
RR	RR1 RR2	Without flange/wing	Bridge (closed)	Open	Two sliders mouth to mouth
NOTE — The second letter 'R' in the type designations denotes that the fastener is reversible.					

ANNEX A*(Foreword)***CHAIN CONSTRUCTIONS, END USES AND PERFORMANCE CODES****A-1 CHAIN CONSTRUCTIONS**

Typical chain constructions are shown in Fig. 4.

**A METAL ELEMENTS****B DIE CAST OR PLASTICS
MOULDED ELEMENTS****C OFFSET COIL ELEMENTS****D MEANDER OR LADDER ELEMENTS****FIG. 4 FASTENER CHAIN CONSTRUCTIONS****A-2 END USES AND PERFORMANCE CODES**

End Uses	Performance Codes	Ultra Light	Light	Medium	Medium Heavy	Heavy
Dresses		×	×			
Knitwear		×	×	×		
Light leather goods		×	×			
Skirts, jeans or trousers			×	×		
Upholstery			×	×		
Foundation garments				×		
Coats and jackets				×	×	
Overalls				×		
Luggage				×	×	×
Slippers				×		
Sleeping bags				×	×	
Lightweight and inner tents				×	×	
Footwear					×	×
Leather garments					×	
Ski clothes					×	
Wet suits						×

ANNEX B

(Clause 10.4)

METHOD OF TESTING RESISTANCE OF CHAIN TO LATERAL LOAD

B-1 OUTLINE

The test specimen is subjected to lateral load under controlled conditions while the fastener chain is in the closed position.

width of each tape is gripped and there is at least 25 mm of closed chain on either side. The machine is then set in operation until the specified loading is reached, unless the specimen fails earlier.

B-2 APPARATUS

B-2.1 The testing machine shall be of constant rate of traverse type and the speed of the opening of the jaws shall be 102 ± 13 mm per minute. The load range shall be such that the breaking load of the test specimen falls between 15 and 85 percent of the maximum reading on the scale.

NOTE — It is recommended that the load scale be calibrated at least once every 12 months by adding dead weights successively. Since calibration of these machines is normally carried out with maximum reading device inoperative, the use of a maximum reading device at low loads may introduce serious errors.

B-2.2 The gripping jaws or other securing devices shall have a gripping surface 25 mm wide. The jaws shall be so constructed and finished so that they neither damage the tape nor allow the specimen under test to slip (see Fig. 5).

B-3 PROCEDURE

The test specimen is secured in place with the gripping devices so arranged that at least half the

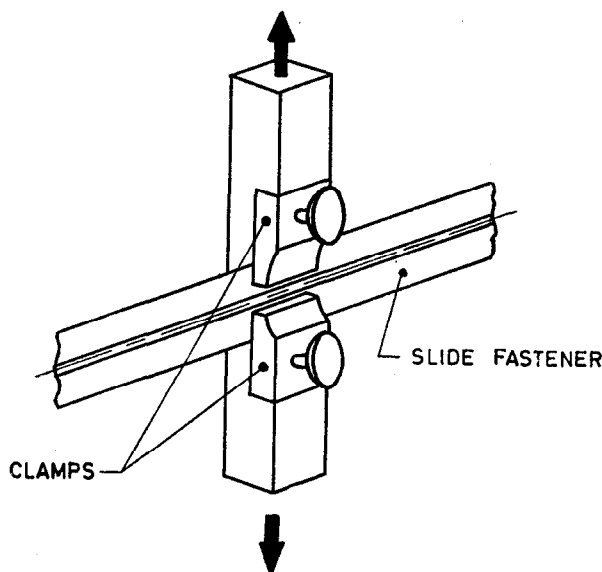


FIG. 5 LATERAL LOAD FOR CHAIN

ANNEX C

(Clause 10.5)

METHOD OF TEST FOR RECIPROCATING MOVEMENT OF SLIDER

C-1 APPARATUS

A testing machine which operates in horizontal or vertical plane, constructed in such a way as to provide the following facilities:

- a) A fixed clamp to grip one end of the fastener as shown in Fig. 6,
- b) Means of opening and closing the fastener continuously in a definite manner. The slider shall have arrangement for reciprocating movement of 30 cycles per minute and length of traverse of the slider shall be between 75 to 90 mm,
- c) Means of gripping the tape securely by two clamps placed in between the length of the fastener at opposite points so that the clamps may be subjected to transverse

load by means of spring balance or weights as shown in Fig. 6,

- d) Means of separately gripping the two halves of the fastener at the other end so that the fastener beyond the slider is open. The gripping device shall swing through the spring balances or through the pulleys and weights. The distance between the gripping device is such that when the slider is at the lowest point in the cycle, the two ends of the fastener subtend an angle of approximately 60° , and
- e) Means of gripping the tape securely by 3 or 4 clamps equally spaced along the length at opposite points of the testing zones. So that the clamps may be subjected to transverse load by means of spring balance or weights.

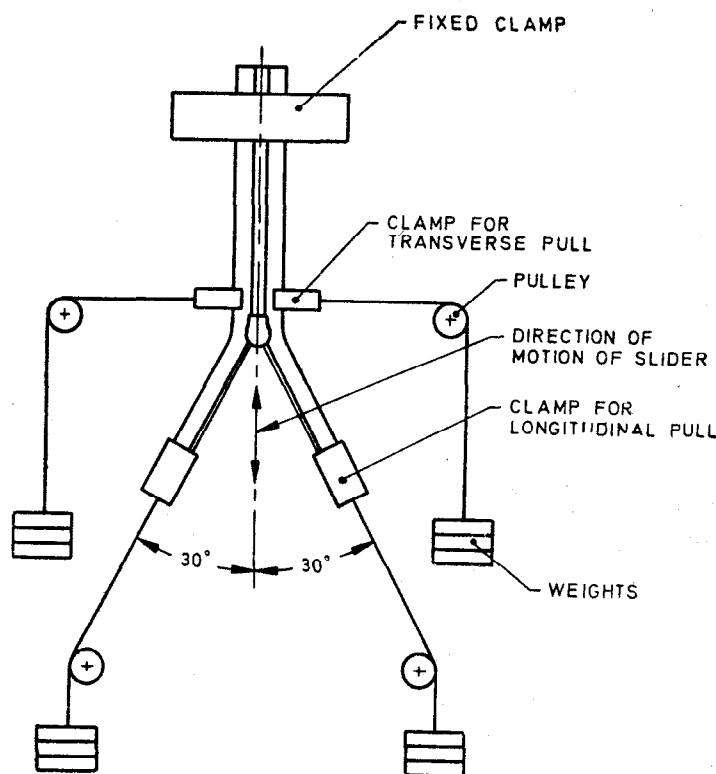


FIG. 6 RECIPROCATING MOVEMENT TEST FOR SLIDER

C-2 PROCEDURE

C-2.1 The fastener is fixed in the machine symmetrically about the direction of motion of the slider as shown in Fig. 6.

C-2.2 The slider is adjusted to move between 75 to 90 mm length of the fastener.

C-2.3 The appropriate lateral and longitudinal loads as specified in 10.4 are applied.

C-2.4 The machine is put in motion for one cycle only to equalise the position of fastener.

C-2.5 The machine is then set in motion at constant speed.

C-2.6 The machine is left in operation until the 1 000 cycles are completed, unless the specimen fails earlier.

ANNEX D

(Clause 10.6)

METHOD OF TEST FOR SECURITY OF ATTACHMENT OF TOP AND BOTTOM STOPS

D-1 OUTLINE

Each stop is subjected to tension while the fastener is secured in position, load being applied through the medium of the puller in such a way as to bring the stop under pressure from the slider.

D-2 APPARATUS

A testing machine as described in Annex B is used. Diagrammatic sketones of the arrangement are given in Fig. 7 and 8.

D-3 PROCEDURE

D-3.1 Top Stop Test (All Types of Fasteners)

The test specimen is in the closed position with

the slider adjacent to the top stop. The puller is secured in one jaw of the machine and the other end of the specimen in the other jaw, steps being taken to avoid damaging the chain. The machine is then set in operation until the specified loading is reached, unless the specimen fails earlier.

D-3.2 Bottom Stop Test (Closed End Fasteners)

The test specimen is in the open position, the slider being adjacent to the bottom stop. The angle between the stringers is the natural angle of opening, which is usually between 40° and 60°. The proceed as described in B-3.

NOTE — A stringer is a row of scoops fitted on a textile tape.

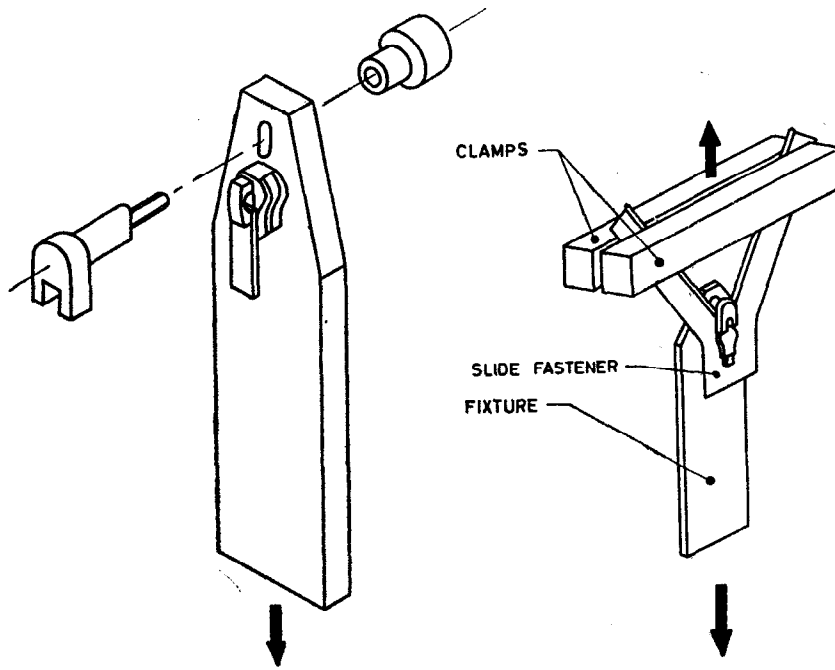


FIG. 7 SECURITY OF ATTACHMENT TEST FOR BOTTOM STOPS

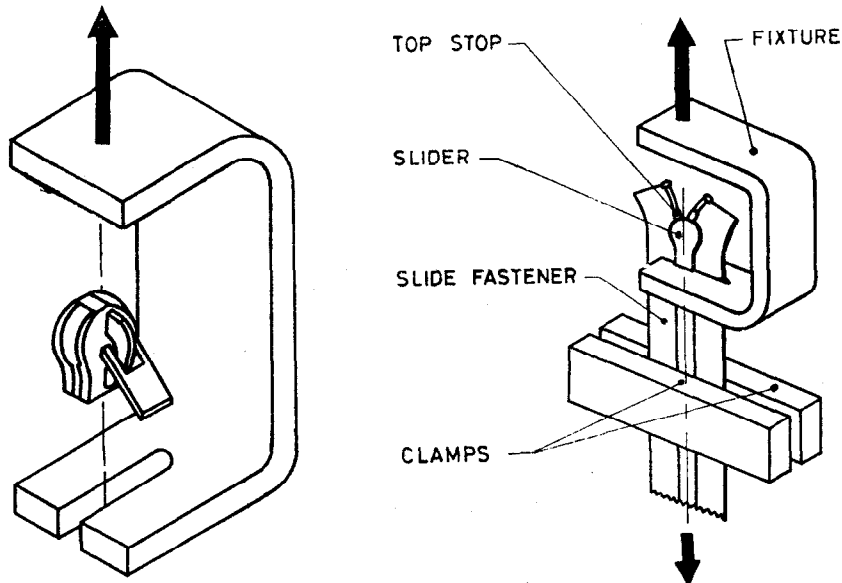


FIG. 8 SECURITY OF ATTACHMENT TEST FOR TOP STOPS

ANNEX E

(Clause 10.7)

METHODS OF TESTING RESISTANCE OF RETAINER TO LATERAL LOAD FOR OPEN END FASTENERS

E-1 OUTLINE

The test specimen is subjected to lateral loading under controlled conditions while the fastener chain is in the closed position.

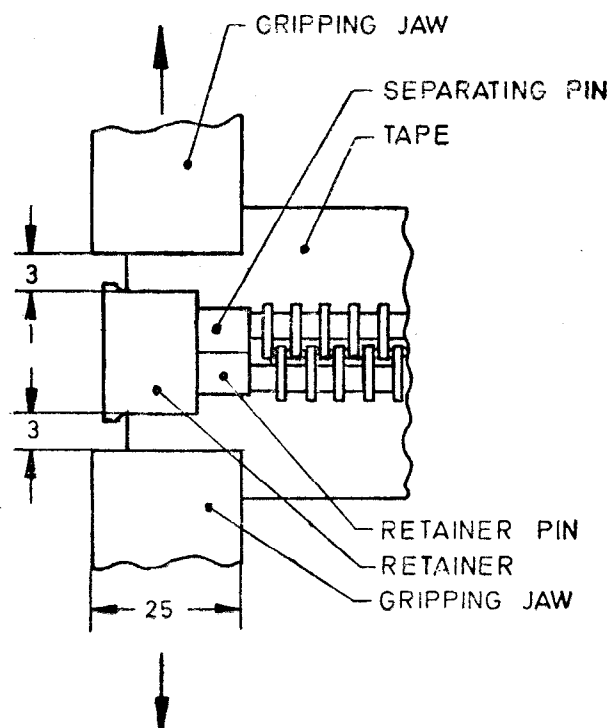
E-2 APPARATUS

A testing machine as described in B-2.1 is used. The gripping jaws shall be 25 mm wide and would be so constructed and finished as not to damage

the tape while tightening and not to allow the specimen under test to slip (see Fig. 9).

E-3 PROCEDURE

The test specimen shall be secured in the gripping jaws of the testing machine with the edges of the jaws parallel to and 3 mm from the sides of the retainer. The jaws will be arranged so that the separating pin aligns with the edges of the jaws. The machine is set in operation until the specified loading is reached, unless the specimen fails earlier.



All dimensions in millimetres.

FIG. 9 LATERAL LOAD TEST FOR RETAINER OPEN END FASTENER

ANNEX F

(Clause 10.8)

METHOD OF TESTING SECURITY OF ATTACHMENT OF RETAINER TO LONGITUDINAL LOAD FOR OPEN END FASTENERS

F-1 OUTLINE

The retainer is subjected to longitudinal load while the fastener chain is in the closed position.

F-2 APPARATUS

A testing machine as described in B-2.1 is used. Fig. 10 gives diagrammatic sketch of the arrangement.

F-3 PROCEDURE

With the test specimen in the closed position, the interlocked chain is clamped into one jaw of the testing machine, steps being taken to avoid damaging the chain. A slotted plate, shaped to clear the tape, chain and pin and to bear against the whole of the top edges of the retainer is clamped into the other jaw. The machine is set in operation until the specified loading is reached, unless the specimen fails earlier.

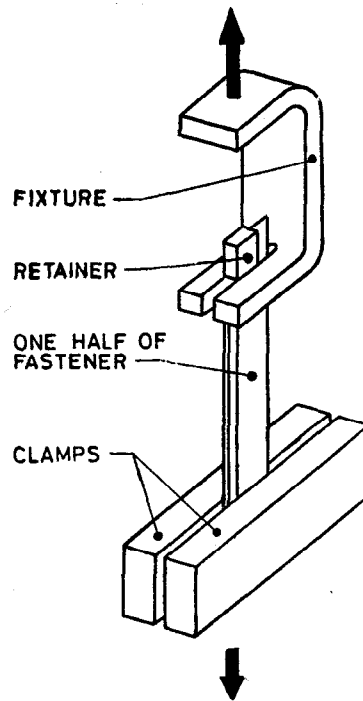


FIG. 10 LONGITUDINAL LOAD TEST FOR RETAINING OPEN END FASTENER

ANNEX G

(Clause 10.9)

METHOD OF TESTING SECURITY OF ATTACHMENT OF PULLER

G-1 OUTLINE

The puller is subjected to tension while the slider is rigidly supported.

G-2 APPARATUS

G-2.1 A testing machine as described in B-2.1 is used.

G-2.2 A masking device for the slider, such as a face-plate is required so that tension is confined to the puller attachment to the slider (see Fig. 11).

G-3 PROCEDURE

The specimen is mounted in one grinding device of the testing machine with the puller passed through a hole in the mask. The mask is so arranged at the slider and the chain are rigidly clamped in place, only the puller being free. The end of the puller then secured to the other gripping device so that tension is applied at 90° to the face of the slider. The testing machine is then set in operation until specified loading is reached, unless the specimen fails earlier.

ANNEX H

(Clause 10.10)

METHOD OF TEST FOR SLIDER LOCK HOLDING STRENGTH

H-1 OUTLINE

The slider is locked on the chain and the locking device subjected to tension, load being applied at 180° to the device, via the chain stringers in such a way as to bring the locking device under pressure from the chain.

H-2 APPARATUS

A testing machine as described in B-2.1 is used. Fig. 12 gives a diagrammatic sketch of the arrangement.

H-3 PROCEDURE

The test specimen is in the open position with the locking device locked into the chain 25 mm from the top stops. The jaws are set 50 mm apart and the top of the stringer secured into the jaws adjacent to the top so that the top of the slider is 25 mm from the edge of each jaw. The machine is set in motion and the load increased until the locking mechanism slips or the specimen fails.

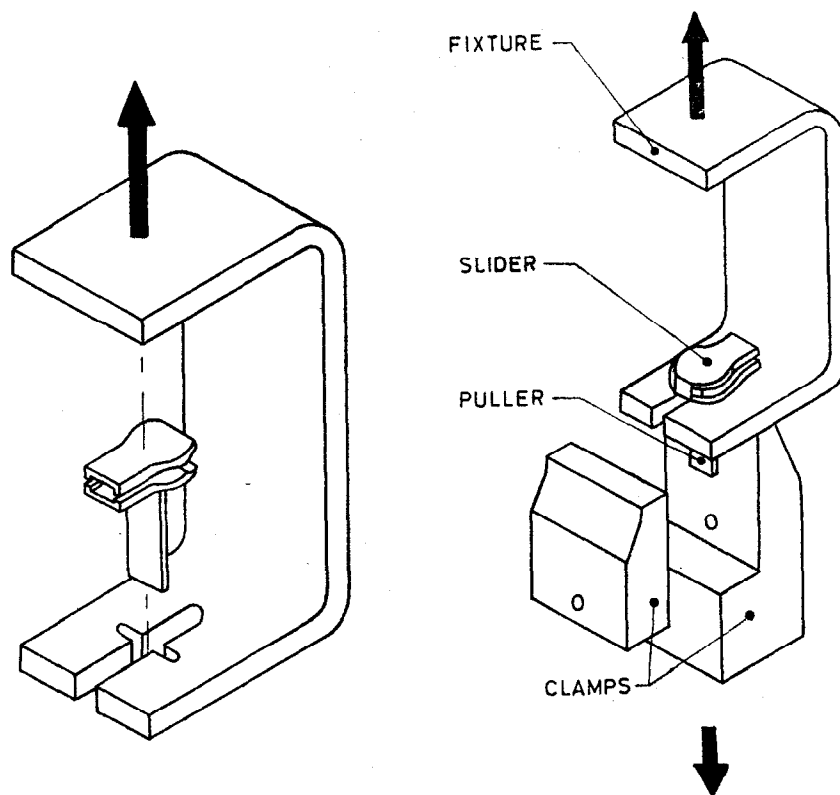
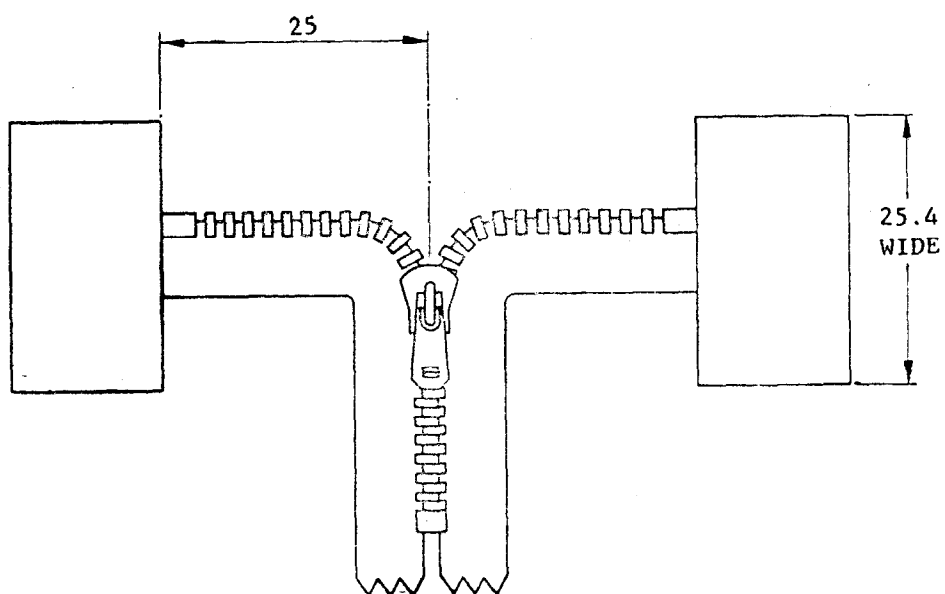


FIG. 11 SECURITY OF ATTACHMENT TEST FOR PULLER



All dimensions in millimetres.

FIG. 12 STRENGTH TEST FOR SLIDER LOCK

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